

In the Claims

Please cancel claims 10-17, and add new claims 18-22 as follows:

18. A foam cutting machine with a vertical blade strip (90') and a horizontal blade strip (90), comprising:

an apparatus body (10) having a working surface (11) linearly and reciprocally movable back and forth for moving a work piece place thereon; and

a frame (20) bridging over the apparatus body (10), the frame having two substantially upright columns on a first side (101) and a second side (102) of the frame (20) and two transverse beams on a third side (103) and a fourth side (104) of the frame (20), the two transverse beams connected between the two upright columns to define a substantially rectangular winding space for accommodating a vertical cutting device (17) and a horizontal cutting device (16), wherein

the horizontal cutting device (16) comprising:

a guide rail (21) disposed adjacent to the first side (101) of the frame (20),

a first linear slide bar (22a) disposed between the first side (101) of the frame (20) and the guide rail (21) substantially parallel to the guide rail (21),

a second linear slide bar (22b) disposed adjacent to the second side (102) of the frame (20),

a third linear slide bar (22c) disposed between the second side (102) of the frame (20) and the second linear slide bar (22b) substantially parallel to the second linear slide bar (22b),

a first blade turning unit (32a) movably engaged with the guide rail (21), the first blade turning unit (32a) having a first blade seat (33a) for mounting a first blade holder (51a) for holding the horizontal blade strip (90), defining one end of a working section (X) of the horizontal blade strip (90), wherein the first blade turning unit (32a) is capable of turning the working section (X) of the horizontal blade strip at a deflection angle when cutting an irregular or curved shape;

a second blade turning unit (32b) movably engaged with the second linear slide bar (22b), the second blade turning unit (32b) having a second blade seat (33b) for

mounting a second blade holder (51b) for holding the horizontal blade strip (90), defining the other end of the working section (X) of the horizontal blade strip (90), wherein the second blade turning unit is capable of turning the working section (X) of the horizontal blade strip (90) along with the first blade turning unit (32a);

a wheel set (40) including a driving wheel (41) disposed near a corner between the second side (102) and the fourth side (104) of the frame (20), a first pulley (43) movably engaged with the first linear slide bar (22a), a second pulley (47) movably engaged with the third linear slide bar (22c), and two guide wheels (44, 45) separately disposed adjacent to first and second side (101, 102) near the third side (103) of the frame (20), wherein the wheel set (40) is used for winding the horizontal blade strip (90) in a closed loop with a fixed length and the wheel set (40) further includes a tension wheel (46) disposed near the driving wheel (41) for keeping the loop in tension, and wherein the first pulley (43) is connected to a first blade turning unit (32a) for moving the first blade turning unit (32a) along the guide rail (21) when the first pulley (43) is moved along the first linear slide bar (22a); and

a transmission mechanism (23, 24) operatively connected to the first and second pulleys (43, 47) for simultaneously moving the first and second pulleys (43, 47), respectively, along the first and third linear slide bars (22a, 22c) so as to move the working section (X) up and down while maintaining the working section (X) substantially parallel to the working surface (11); and  
the vertical cutting device (17) comprising:

a guide rail (21') disposed adjacent to the fourth side (104) of the frame (20),

a first linear slide bar (22'a) disposed between the fourth side (104) of the frame (20) and the guide rail (21') substantially parallel to the guide rail (21'),

a second linear slide bar (22'b) disposed adjacent to the third side (103) of the frame (20),

a third linear slide bar (22'c) disposed between the third side (103) of the frame (20) and the second linear slide bar (22'b) substantially parallel to the second linear slide bar (22'b),

a first blade turning unit (32'a) movably engaged with the guide rail (21'), the first blade turning unit (32'a) having a first blade seat (33'a) for mounting a first blade

holder (51'a) for holding the vertical blade strip (90'), defining one end of a working section (Y) of the vertical blade strip (90'), wherein the first blade turning unit (32'a) is capable of turning the working section (Y) of the vertical blade strip (90') at a deflection angle when cutting an irregular or curved shape;

a second blade turning unit (32'b) movably engaged with the second linear slide bar (22'b), the second blade turning unit (32'b) having a second blade seat (33'b) for mounting a second blade holder (51'b) for holding the vertical blade strip (90'), defining the other end of the working section (Y) of the vertical blade strip (90'), wherein the second blade turning unit (32'b) is capable of turning the working section (Y) of the vertical blade strip (90') along with the first blade turning unit (32'a);

a wheel set (40') including a driving wheel (41') disposed near a corner between the third side (103) and the first side (101) of the frame (20), a first pulley (43') movably engaged with the first linear slide bar (22'a), a second pulley (47') movably engaged with the third linear slide bar (22'c), two guide wheels (44', 45') separately disposed adjacent to fourth and third side (104, 103) near the second side (102) of the frame (20), wherein the wheel set (40') is used for winding the horizontal blade strip (90') in a closed loop with a fixed length and the wheel set further includes a tension wheel (46') disposed near the driving wheel (41') for keeping the loop in tension, and wherein the first pulley (43') is connected to a first blade turning unit (32'a) for moving the first blade turning unit (32'a) along the guide rail (21') when the first pulley (43') is moved along the first linear slide bar (22'a);

a transmission mechanism (23', 24') operatively connected to the first and second pulleys (43', 47') for simultaneously moving the first and second pulleys (43', 47'), respectively, along the first and third linear slide bars (22'a, 22'c) so as to move the working section (Y) left and right while maintaining the working section (Y) substantially perpendicular to the working surface (11).

19. The foam sponge cutting apparatus of claim 18, further comprising means (12, 13, 14) disposed on the body (10) and mechanically linked to the working surface (11) for moving the working surface (11) relative to the frame (20) for moving the foam sponge piece along a

direction perpendicular to both the working section (X) of the horizontal blade strip (90) and the working section (Y) of the vertical blade strip (90').

20. The foam sponge cutting apparatus of claim 18, further comprising means (50) for limiting the deflection angle of the first and second blade strips (90, 90') from deflecting out of a predetermined angular range.

21. The foam sponge cutting apparatus of claim 18, wherein the working section (Y) of the vertical blade strip (90') can be moved to the first side (101) or the second side (102) when the horizontal blade strip (90) is used to cut the foam sponge piece in the horizontal cutting direction.

22. The foam sponge cutting apparatus of claim 18, wherein the working section (X) of the horizontal blade strip (90) can be moved to the third side (103) or the fourth side (104) when the vertical blade strip (90') is used to cut the foam sponge piece in the vertical cutting direction.

In the Drawings

Please allow applicant to modify and add reference numerals on Figures 1, 2, 6 and 9 as marked in red.